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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,081	03/01/2002	Takayuki Yamamoto	220119US0	9114

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
UHLIR, NIKOLAS J	

ART UNIT	PAPER NUMBER
1773	

DATE MAILED: 05/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/085,081	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Nikolas J. Uhlir	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 8-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 8-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the amendment/request for continued examination dated 4/26/2004. The applicant's submissions have been considered but are not persuasive in overcoming the previously cited prior art. Currently, claims 1-4, and 8-13 are pending.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-4, 8, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (EP0722993) in view Wasel-Nielen et al. (US4294808).

4. Claim 1 requires a metal sheet with an anticorrosive coating formed from an anticorrosive paint on at least one side thereof, where the anticorrosive paint contains 55-85% by weight metallic zinc powder and 1-20.3% by weight of at least one kind of metal salt rust inhibitor, said metal salt being a salt of a metal which is more base than zinc; wherein the metal salt rust inhibitor is a fine powder having an average particle diameter no larger than 1 μm.

5. The limitations of claim 1 require a metal sheet with an anticorrosive coating formed from an anticorrosive paint on at least one side thereof, where the anticorrosive paint contains 55-85% by weight metallic zinc powder and 1-20.3% by weight of at least one kind of metal salt rust inhibitor, said metal salt being a salt of a metal which is more base than zinc.

6. With respect to these limitations Shinohara et al. (Shinohara) teaches a process for coating a steel plate with a corrosion inhibiting coating, wherein the corrosion inhibiting coating comprises a polymer binder, a zinc powder having an average particle size in the range of 1-15μ, and a rust preventing pigment selected from zinc phosphate, aluminum phosphate, calcium phosphate, zinc molybdate or calcium molybdate (page 3, lines 50-59 and page 10, lines 38-40).

7. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to select either aluminum or calcium phosphate as the rust preventing pigment in Shinohara, as these materials are recognized to be equivalent to the other materials listed as suitable for this purpose.

8. The applicant is respectfully reminded that substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. *In Re Fount* 213 USPQ 532 (CCPA 1982); *In Re Siebentritt* 152 USPQ 618 (CCPA 1967); *Grover Tank & Mfg. Co. Inc V. Linde Air Products Co.* 85 USPQ 328 (USSC 1950).

9. The examiner takes the position that the requirement in claim 1 that the rust inhibitor be a salt of a metal that is more basic then Zinc is met when either aluminum or calcium phosphate is utilized, as these materials are specifically listed on page 4, paragraph 3 of the instant specification as meeting this requirement.

10. Regarding the amount of rust inhibitor and zinc powder, Shinohara teaches that the coating material suitably contains 15-70% by weight zinc powder and 0-20% by weight of rust inhibiting pigment (page 4, lines 3-6). As 70% by weight zinc powder and

20% by weight rust inhibiting pigment are completely encompassed within the applicant's required ranges, these limitations are met.

11. Shinohara fails to teach that the rust inhibitor has an average particle diameter no greater than 1μ, as required by claim 1.

12. However, with respect to this deficiency, Wasel-Nielen et al. (Wasel) teaches a method for making anticorrosive pigments such as calcium phosphate, aluminum phosphate, and other phosphate based anticorrosive pigments. Further, Wasel teaches that the particle size of an anticorrosive pigment should preferably be small, so that the pigment may cover the largest area with the smallest amount of material 9column 1, lines 35-51). Further, the particle size of an anticorrosive pigment impacts its anticorrosion efficiency, with small pigments being more efficient than large pigments (column 1, lines 18-36). With this knowledge in mind, Wasel teaches a method for forming an anticorrosive pigment that allows a pigment powder to be formed wherein at least 90% of the pigment has a particle size in the range of 0.05-8μ (column 4, lines 26-41 and column 6, example 6).

13. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to control the particle size of the anticorrosive pigment taught by Shinohara such that all of the pigment particles have a diameter of 0.05μ.

14. One would have been motivated to make this modification in view of the fact that Wasel teaches a method for making an anticorrosive pigment powder formed from similar materials as those used in Shinohara, where at least 90% of the powder has a particle size in the range of 0.05-8μ. Thus, it is clearly established that the formation of

0.05μ anticorrosive pigment powders similar to those used in Shinohara is possible. One would be motivated to specifically control the particle size of the anticorrosive pigment of Shinohara to 0.05μ in view of the teaching in Wasel that the particle size of an anticorrosive pigment impacts the anticorrosive efficiency of the pigment, with smaller pigments exhibiting improved anticorrosion efficiency, and the fact that 0.05μ is the smallest particle diameter taught by Wasel.

15. The examiner notes that when all of the particles of the anticorrosive pigment have a particle diameter of 0.05, the average particle size of the powder will be 0.05μ, thus meeting applicant's claimed average particle diameter requirement.

16. Regarding the limitations of claim 2, wherein the applicant requires the substrate to be a steel sheet, this limitation is met as set forth above for claim 1.

17. Regarding the limitations of claim 3, wherein the applicant requires the coating film to have a thickness in the range of 5-30μ. Shinohara teaches that the dry film thickness of the coating should preferably be between 10-30μ (page 5, lines 44-47). Thus, this limitation is met.

18. Regarding claim 4, wherein the applicant requires the zinc powder to have an average particle diameter between 0.01-20μ. As stated above for claim 1, Shinohara teaches that the powder has an average particle size between 1-15μ. Thus this limitation is met.

19. Regarding claim 8, wherein the applicant requires the metal salt rust inhibitor to be a phosphate. This limitation is met as set forth above for claim 1 when calcium or aluminum phosphate is utilized as the rust preventing pigment.

20. Regarding the limitations of claim 11, wherein the applicant requires a generic method for making a metal sheet with an anticorrosive coating comprising the steps of coating an anticorrosive coating on a metal sheet and producing the metal sheet with the anticorrosive coating as defined in claim 1. These limitations are met as set forth above for claim 1, as the coated metal sheet of Shinohara necessarily would require the steps of "coating" the metal sheet with the composition according to claim 1, when an aluminum or calcium phosphate is utilized as the anticorrosive pigment.

21. Claims 12 and 13 require the metal salt to be a salt of Al, Ca, or Mg (claim 12), more specifically a metal salt of Ca (claim 13). This limitation is met as set forth above for claim 1. The obviousness of selecting Ca Phosphate is set forth above at section 7.

22. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara as modified by Wasel as applied to claim 1 above, and further in view of Mekishima et al. (US4040842).

23. Shinohara as modified by Wasel does not teach the use of a metal salt rust inhibitor that is a phosphomolybdate of a metal that is more basic than Zn, as required by claim 9.

24. However, Mekishima et al. (Mekishima) teaches various corrosion inhibiting pigments that are suitable for use in a corrosion prevention coating that also includes zinc powder and a resin binder. Suitable corrosion inhibiting pigments include zinc molybdate, calcium molybdate, magnesium phosphomolybdate, and barium phosphomolybdate.

25. Therefore it would have been obvious to one of ordinary skill in the art to utilize barium or magnesium phosphomolybdate as taught by Mekishima as the corrosion inhibiting pigment taught by Shinohara as modified by Wasel.

26. One would have made this modification in light of the fact that Ba and Mg phosphomolybdate are recognized to be equivalent to Zn molybdate as suitable materials for use as a corrosion inhibiting pigment in a corrosion resistant resin powder that additionally comprises a zinc powder.

27. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara as modified by Wasel as applied to claim 1 above, and further in view of Rivera (US6117251).

28. Shinohara as modified by Wasel does not teach a phosphate coating between the metal sheet and a corrosion inhibiting paint coating, as required by claim 10.

29. However, Rivera teaches coating a steel sheet with a layer of Zinc Phosphate so as to minimize the corrosion of the sheet and to improve the adhesion of subsequently coated materials such as sealants and paints to the surface of the metal sheet (column 2, lines 34-42 and column 1, lines 5-20).

30. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form a zinc phosphate coating as taught by Rivera between the surface of the steel sheet and the corrosion preventing coating utilized by Shinohara as modified by Wasel.

31. One would have been motivated to make this modification due to the teaching in Rivera that applying a layer of Zinc Phosphate to the surface of a steel sheet improves the adhesion of subsequent materials that are deposited on the sheet.

Response to Arguments

32. Applicant's arguments filed 4/26/2004 have been fully considered but they are not persuasive. The applicant has again presented the same argument of "unexpected" results for the claimed average particle size. Specifically, the applicant asserts that there is a "significant" improvement in corrosion resistance as a result of the particle size. The applicant relies on table 1 in the specification to support this argument of "significant improvement." It appears from table 1, specifically from a comparison of example 9 to examples 12 and 13 that the "significant improvement" is characterized by the pitting resistance, red rust resistance, and corrosion resistance changing from "B" in samples 12 and 13 to "A" in sample 9. This difference is asserted to result solely from the fact that sample 9 utilizes a rust inhibitor having an average particle diameter within the claimed range.

33. While the examiner acknowledges that there may be some difference between these samples, the data presented is subjective. There is no way for the examiner to tell how different a resistance level of "B" is from a resistance level of "A." The specification, page 8 paragraph 1 states that for pitting resistance, "A", "B", and "C" mean less than 100 μ, no less than 100 μm and less than 200 μm, and no less than 200 μm respectively. Page 8, paragraph 2 states that for red rust resistance, "A", "B", and "C" mean less than 10%, no less than 10% and less than 20%, no less than 20% and less

than 30%, and no less than 30% respectively. Page 9 paragraph 1, states that for corrosion resistance, "A", "B", and "C" mean less than 1.5 mm, no less than 1.5 mm and less than 3.0 mm, and no less than 3.0 mm respectively. Thus, there the difference between a corrosion resistance of "A" and a corrosion resistance of "B" could be infinitely small, because a sheet that corroded 1.4999999999...mm would be rated as "A", whereas a sheet that corroded 1.5000000000...mm would be rated as "B". IN view of the subjective nature o the data presented, the examiner cannot consider the difference between a rating of "A" and a rating of "B" to *necessarily* connote an unexpected improvement. Thus, applicant's argument of unexpected results is not persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhlir whose telephone number is 571-272-1517. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau can be reached on 571-272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

nju

Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700